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ABSTRACT

Factors that affect the utility of financial data collected through the Higher Education General Information Surveys (HEGIS) are examined. Attention is also directed to the process associated with the collection and use of that data; roles and responsibilities of various parties to that process, with a focus on researchers' roles; and possible future steps to improve the usefulness of these data. The following factors are identified as affecting the utility of HEGIS finance data: quality of the data, relevance of the data for decision-making, accessibility of the data, timeliness of the data, and cost-effectiveness of the data. Specific recommendations to improve the utility of HEGIS finance data are offered for provider institutions, the data collector institution, researcher, and users. The recommendations pertain to data collection design, data collection, editing, release, analysis, and use, are presented in detailed tabular form. (SW)

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The Utility of HEGIS Finance Data: A Researcher's Perspective

Working Paper Series

HE 017 556

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The Utility of HEGIS Finance Data: A Researcher's Perspective

Marilyn McCoy

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HEGIS Data Quality Project

National Center for Higher Education Management Systems
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Foreword

This report is one of four written as part of the project called Assessing the Quality of the HEGIS Data. The project was supported by the National Institute of Education and was designed to study problems and issues related to the quality of the data collected through the Higher Education General Information Survey (HEGIS) by the National Center for Education Statistics (NCES). There are five major surveys collected annually, and three minor surveys collected periodically. The major surveys are entitled Institutional Characteristics, Financial Statistics, Opening Fall Enrollment, Earned Degrees, and Employees. The periodic surveys are entitled Facilities, Residency and Migration, and Libraries.

Frequently HEGIS data are needed to make comparisons between states, between institutions, and between institutional sectors. Since higher education is so diverse, comparative analysis is often difficult. After reviewing previous work done in the area, this project examined HEGIS data for their comparability, policy relevance, accuracy, and validity. To examine comparability, four studies were conducted through the Data Quality project: (1) the development of a new and improved taxonomy for colleges and universities; (2) a study investigating the impact of medical schools on the financial statistics reported by institutions; (3) a survey of state practices affecting the reporting of HEGIS data; and (4) an assessment of longitudinal changes in the reporting units of the HEGIS universe. To examine policy relevance, the project studied the utility of the data from a researcher's perspective. To examine accuracy and validity, the project conducted a study that suggested NCES could improve the accuracy of the data by more extensive verification checks identifying outlying institutions through cross-survey measures.

Four reports are being made available to any interested party; they are listed below by title and author.

- "An Improved Taxonomy of Postsecondary Institutions" by David J. Makowski and Rolf M. Wulfsberg
- "Impact of Health Programs on Instructional Expenditures in Higher Education" by John D. Smith
- "State Reporting Practices and the Quality of HEGIS Finance Data" by Jane N. Ryland
- "The Utility of HEGIS Finance Data: A Researcher's Perspective" by Marilyn McCoy

Copies of the papers can be obtained by writing to:

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Introduction

The financial data collected by the National Center for Education Statistics (NCES) through its Higher Education General Information Surveys (HEGIS) represent the only ongoing source of financial information about all higher education institutions in the United States. Since this is one of the few major surveys that collects finance data from institutions on a national basis, efforts to improve its utility can be expected to have broad and major benefits. As a background to efforts to improve the HEGIS, this paper examines (a) the factors that affect the utility of this data set, (b) the process associated with the collection and use of that data, (c) the roles and responsibilities of various parties to that process--focusing in particular on those of researchers--and finally (d) possible steps for the future to improve the usefulness of these data. This discussion is cast in broad rather than specific terms. It was felt that such an approach would provide a much needed background on which a subsequent examination of specific and detailed recommendations could be made.

Utility of HEGIS Finance Data

It is important to review what factors affect the utility of any data set, since improvements in utility are dependent on these conditions. In the course of this, the author (1) proposes her own set of factors, and (2) outlines specific steps to improve these factors. This list is offered as a starting point for further input and development. It should also be noted that while these factors have been identified specifically in the context of HEGIS finance data, they can, in most cases, be generalized to other data collections. The following factors are identified as affecting the utility of HEGIS finance data:

- Quality of the data
- Relevance of the data for decisionmaking
- Accessibility of the data
- Timeliness of the data
- Cost-effectiveness of the data

Each of these factors is discussed below.

Quality of the Data in Reflecting the Financial Realities of Higher-Education Institutions

The purpose of gathering data that reflects financial conditions is to provide empirical evidence that depicts who provides which funds; how they are used; and what assets are accumulated. Even at their best, such data are only an abstraction of reality and thus never as good as the reality itself. This recognition is important to consider as one seeks both to collect and use data depicting the finances of higher education. One must not assume that these data, despite their appearance of empirical concreteness, are more than they are. As stated by Fellegi (1980), data collection typically involves compromises between the concept a decisionmaker might wish to measure (the ideal concept) and what is possible and practical to measure (the

operationalized concept). Such difficulties are endemic to data collection and are not easily resolved. A specific example in the context of HEGIS financial data would be instruction expenditures. As an ideal concept, it is clear that instruction happens in a variety of settings (in the classroom, in the dormitory, in a lecture hall, in a language house, at a concert) using a variety of resources (faculty, other students, visiting lecturers, facilities, equipment, and time). Yet to represent these operationally in this case, a single medium (money) is picked and somewhat arbitrarily certain portions of resources are allocated to this function (as opposed to doing precise studies of time and resource allocations) to reflect the extent of activity and costs in these areas. These allocations are made despite joint product problems among instruction, research, and other program areas in terms of faculty time, space, and equipment use, etc.

The resulting data are therefore an abstraction of reality, and judgments are needed about the quality of the data as an abstraction. Statistically, quality is traditionally judged in terms of the validity of the data in approximating reality, the reliability of the data in repeatedly measuring that reality, and the accuracy of the data in terms of how closely it measures reality.

NCES periodically conducts validation studies to assess data quality. In addition, various institutions, state agencies and other users have been concerned with assessing the quality of these data. Studies such as those conducted by Minter and by Andrews suggest that the quality of the HEGIS financial data is improving. NCHEMS is developing a set of procedures that can be used to assess data quality in a broad way as new data tapes are acquired. The procedures use a variety of common measures, for example, state and local appropriations per student, instruction expenditures per student, operation and plant maintenance per assignable square feet, etc. to examine the data reported by institutions of various types in search of unusual values. If such values are found, NCES contacts the institutions to determine whether such occurrences are correct.

Continuing efforts to assess data quality are needed. In those areas found to be problematic, NCES should consider (a) further clarification of definitions, (b) changes in existing survey forms in the categories used and (c) supplementary surveys where warranted. Through the publication of a series of guides by NCHEMS under NCES sponsorship, significant steps in this direction have already been completed (Collier and Allen 1980; Allen 1980; Collier 1980). An additional step of providing feedback to those reporting data (through institutional profile reports developed using HEGIS financial and other data) should also help.

Integrity of data is a related dimension of data quality. All parties to the use of financial information must be assured that the data have not been tampered with, either in collection or analysis, to serve local purposes. To assure integrity, care must be taken that data are not changed arbitrarily--that is, procedures governing all providers must be followed--that only recognized parties can submit and change data--that is, that there is a regular and designated provider of data--that the data are widely and generally shared, and that the analysis performed is subjected to widespread scrutiny. Clearly, the responsibility for the integrity of data is broadly distributed among providers, collectors, researchers and ultimately the users of these data.

Relevance of Financial Data for Decisionmaking

In higher education, there have recently been a large number of users of HEGIS financial data, indicating that such information is highly relevant. At issue then is whether there are certain changes that should be made to increase the relevance of this data set to specific users. For NCES as a general statistical agency, attempting to serve many kinds of users, this task is a particularly difficult one. As a result, it must seek to assure that the process used in selecting data for collection and dissemination is broadly representative of higher education.

Accessibility of Financial Data

While HEGIS financial data are potentially relevant to a great many decisions in higher education, their accessibility for those decisions is not always apparent. Their existence may be unknown, the process of acquiring them may be too complicated or expensive, or other factors may interfere with their use. NCES has continued to experiment with a variety of dissemination strategies: EDSTAT, preliminary release newsletters, special reports, computer tape distribution, etc. to increase the use of these data. The recent increase in their use attests to the success NCES is achieving. However, the experiences of this researcher in using HEGIS financial data at a detailed level suggests that use of these data at this specific level is quite complicated. Steps involved are: (1) developing familiarity with their content, (2) comprehending the documentation that is provided with computer tapes, (3) adjusting to changes in form and content of documentation, (4) identifying which institutions are included from year to year, and how they are classified (as part of a system or as a separate campus), and (5) perceiving limitations in the data. These are all important tasks that precede actual use of the data for analysis. For many users, such an investment in time and effort is too costly. At issue then is whether NCES can accomplish more of these tasks centrally as a way of encouraging greater use of these data. The collective experience of many researchers who have used these data could aid NCES in this process.

Timeliness of the Data

Timeliness is well recognized as one of the most important attributes of data. Timeliness requires that delay between the time data are collected, compiled and finally released be minimized. Such promptness, however, also represents a tradeoff between a quick response that may produce unreliable data, and reliable figures that take too long to generate.

NCES has substantially improved the timeliness of HEGIS financial data. To improve further the turnaround time, three suggestions are made: (1) NCES should continue to use the SHEEO Network to obtain more prompt responses from institutions, (2) NCES should consider shifting more of the editing responsibility to the state level, and (3) NCES should consider a standard sample of institutions that are prompt respondents for calculating preliminary release figures. In addition, efforts by NCES to provide feedback to institutions in the form of institutional profiles would provide direct incentives to these institutions to participate more actively in submitting data to HEGIS.

Cost Effectiveness of Data

The process of obtaining data is a continual balancing act between the costs of acquiring them and the benefits of using them. These costs are experienced among all parties--the institutions reporting the data, NCES in collecting the data, researchers in analyzing the data, and users in obtaining and applying the data. These costs are also important to consider as part of any efforts to improve data quality, relevancy, accessibility, and timeliness. Further elaborations in definitions, changes in procedures, and other efforts to improve the accuracy of data all entail further costs. At issue then is determining what the proper balance is between improved precision and its cost. The cost of personally watching each professor to calculate instruction expenditures is obviously too great. But what is a reasonable cost? For institutions, some of which never use these data, any costs are unreasonable. A better balance between costs and benefits is warranted and is associated with increased use of these data. The provision of institutional profiles is one suggestion in this context to improve the benefit side of this equation.

The foregoing section has identified some of the factors that affect the utility of data--that is, data quality, relevance, accessibility, timeliness and cost-effectiveness. The next section examines how these data are collected and used as a basis for identifying strategies to improve this process. Improvements in the process thus provide the basis for improvements in the utility of the data.

Process of Data Collection and Use

The process of collecting and using data is obviously quite complex. This author has identified at least six major phases--data collection design, data collection, editing, release, analysis, and use--with a variety of substeps in each area (see figure 1). While the steps themselves are complicated enough, the process is further complicated by the fact that: (a) all the phases are interrelated--for example, the editing stage affects analysis; use affects succeeding data collection designs, and (b) there are a large number of participants in this process--such as data providers, data collectors, researchers, and users, the actions of each affect the whole process.

Efforts to improve the utility of HEGIS finance data are, therefore, themselves necessarily complex. For example, changing a definition to provide greater comparability and hence improved use will have to be examined in light of its feasibility for reporting by institutions. Such changes, therefore, are dependent on the recognition of shared responsibilities among all participants in this process. In figure 1, the author has attempted to identify the relative roles of these four types of participants.[1] For example, the first step in data collection design--enunciation of need/use--is depicted as the main responsibility of NCES, a heavy responsibility of different users, and a lesser responsibility of data providers and researchers. A clarification of those roles among the parties to this process is a beginning step for improving the process.

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[1]While four separate participant roles have been indicated, it should be noted that any individual group may carry out multiple roles. For example, an institution may be a data provider, a researcher, and a data user, shifting roles at any given time.

There are at least three major aspects of this model of the data-collection-and-use process. The first is that the process of improving HEGIS financial data is an evolutionary, and not a revolutionary, approach. The interdependent and recurring nature of this process suggests that to be effective, changes and improvements will necessarily have to occur gradually. Drastic changes in data collection procedures, for example, cannot be readily accommodated by institutional information systems instantaneously. An attempt to force a sudden change is likely to be ignored or responded to inadequately. A more measured and sequential process is thus required. However, given the desire and need for high quality information, the deferral of improvements is a frustrating experience requiring participants to be very patient.

A second aspect is that changes in the process require substantial amounts of coordination involving many different participants. Getting the attention and active support of these participants is a major task in itself. The energetic efforts of the concerned parties is essential. The group thus assembled in this meeting is at least a starting point in this regard.

Figure 1

Model of the Data Collection and Use Process

Process	PARTICIPANTS (M= Main Responsibility, IH= Involved Heavily, IS= Involved Somewhat)			
	Data Provider	Data Collector	Researcher	User
I. Data Collection Design				
• Enunciation of needs/use	IS	M	IS	IH
• Selection of data for collection	IH			
• Pre-test with providers and users for feasibility and utility	IH	M	IS	IH
• Notification of plans	IH	M	--	--
• Subsequent redesign and clarification	IH	M	IS	IS
II. Data Collection				
• Provider response	M	IH	--	--
• Hand or machine response	M	IH	--	--
• in-state editing	M	--	--	--
• Response time	M	--	--	--
III. Editing				
• Continuity of contractor	--	M	--	--
• Interaction with collector staff	--	M	--	--
• Within file edit	--	M	--	--
• Cross-file edit	--	M	--	--
• Periodic validation studies	IH	M	--	--
• Provider feedback	IH	M	--	--
• Subsequent edit after release	IH	M	IH	IH

Figure 1 (continued)

Process	Data Provider	Data Collector	Researcher	User
IV. Release				
• Preliminary estimates	IS	M	IH	IH
• Full release (timeliness)	--	M	--	--
• Establish fixed and regular publication schedule	--	M	IS	IH
• Format of release designed to facilitate use	--	M	IH	IH
• Documentation of editing	--	M	--	--
• Subsequent documentation of later edits	--	M	--	--
• Dissemination efforts	--	M	--	--
V. Analysis				
• User, provider, collector input on methodology and data	IH	IH	M	IH
• File examination and structuring	IS	IS	M	--
• Unit of analysis (comparison groups)	IH	IH	M	IH
• Comparability issues	IH	IH	M	--
• Documentation of methods and limitations	--	--	M	--
• Cautionary notes	--	--	M	--
• Feedback and revisions	IH	IH	M	IH
VI. Use				
• On-site clarification	IS	IS	M	IH
• Availability of supplementary and clarifying analysis	IH	IH	M	IH
• Understanding of limitations	IH	IH	IH	M
• Involvement of local groups in use	IH	--	--	M
• Feedback and revisions in data and methods	IH	IH	M	IH

Fig. 1. Model of the Data Collection and Use Process

Third, improvements in the utility of HEGIS financial data will continue to occur only through continued <u>use</u> of these data. As Bertram Gross (1966) has stated, "the conclusion seems to be that rather than do nothing it is preferable to start out with bad data, warn everyone about the defects and limitations, and aim at gradual improvement through use" (p. xvi). While HEGIS financial data have progressed substantially beyond the initial stages reflected in Gross' statement, that process of improvement remains an evolutionary goal to be achieved through continuing use. To stop the use of these data in hope of future improvements is unlikely to serve that goal.

Utility of HEGIS Financial Data--A Researcher's Perspective

While the foregoing sections have looked at the generic factors that affect the utility of HEGIS financial data and the process and participants involved in collecting and using that data, this section will identify some of the advantages and problems associated with using these data--from this researcher's perspective. In addition, specific actions that have been taken in response to specific problems will be discussed.

This researcher has been a user of HEGIS data since 1974. NCHEMS has acquired all HEGIS tapes from 1971 to the present and uses these data extensively in the research programs of the Center as well as more recently to provide tailored data reports to institutions and state agencies on request.

Relevance of HEGIS Financial Data to Researchers

Upon undertaking any research activity, the first decision to be made is whether to use existing data or to collect one's own data set. There is no question that use of existing data will require compromises in research design. A general statistical data set, such as HEGIS, is unlikely to be an exact fit with the needs associated with a specific research undertaking. This lack of exact fit will require certain assumptions and extrapolations and even perhaps some supplementary data collection. However, the problems associated with <u>not</u> using existing data and embarking on one's own collection effort must also be considered. The cost of collection, the burden on respondents, the confusion caused by another and likely conflicting data set, and the probable lessening of data quality that is associated with ad hoc or first-time data collection efforts are not to be minimized. Given that many of the analyses of HEGIS financial data at NCHEMS are at the detailed or institutional level, these difficulties necessitate the use of HEGIS financial data.

To compensate for some of the limitations in this data set, a series of assumptions have been made in various applications. For example, in the McCoy/Halstead (McCoy and Halstead 1979) study of financing, the presentation of state and local appropriations implies that these funds are applied to educational and general expenditure purposes where in fact they may also be used for hospitals, auxiliaries or independent operations. In the absence of data in a source/use format, such assumptions are necessary.

To assure that the uses made of HEGIS finance data were both appropriate and relevant to specific decisionmaking needs, NCHEMS has always utilized experts and constituents in making these assessments. The use of task forces, field review of data and reports, peer review by other researchers, and subsequent redesign efforts have provided a rich source of external input on the data and methodology used in the Center's work. Specific examples of changes resulting from such input include a different and more detailed categorization of institutions, changes in the measures used in specific studies, additional analysis to enhance the relevance of a particular study, and initiation of supplementary surveys.

Accessibility of HEGIS Finance Data to Researchers

As previously indicated, the process of readying the financial data for analysis is a complex one despite substantial, accumulated experience with these data on the part of this researcher. The documentation associated with the HEGIS tapes is often not sufficient from a user's perspective. While there have been substantial improvements in the documentation provided by NCES with their data tapes, documentation on older tapes (pre-1976 data) is sketchy and difficult to interpret. Even with the improvements in documentation in recent periods, the documentation that is provided is too terse (not explanatory enough) in many cases. Areas where further documentation is needed include: explaining how the universe of institutions changes year to year, how the reporting universe is structured (for example, what is a branch campus, main campus, system office), how the data have been edited, what imputed values mean, and identifying changes in the data collection instruments as they occur. The current tapes as provided also include a variety of extraneous codes and records that are distracting and inefficient for analysis. This researcher would encourage NCES to continue plans to develop a users manual to accompany the distribution of tapes. In addition, to the extent possible, a deletion of extraneous material from these tapes, and the development of a consolidated time series of tapes would greatly improve the utility of these tapes to both experienced and novice users. In the process of making such improvements, the experience of past users could be used.

Quality of HEGIS Finance Data for Research

Over the six-year period that this researcher has used HEGIS data, many different institutions, states, and researchers in higher education have reported that there has clearly been major improvement in the quality of financial data. Nevertheless, important problems remain. A specific listing of some of the more obvious limitations appears in Financing Higher Education in the Fifty States, FY76, appendix A, section 2 and reprinted in the materials for this meeting These comparability issues are not visible to someone analyzing a computer tape of HEGIS finances. Instead, they have been identified through the publication and use of the HEGIS finance data by those in the field. Since many of the limitations listed in that study were related to differences in practices among the states, a survey[2] has recently been developed and sent to the states to determine the prevalence and magnitude of these problems. The results of this survey will be available for incorporation in analysis, inclusion in data caution sections, and for conducting sensitivity studies to determine the impact of data problems on analytical results.

Some of the data limitations discovered in analyzing and using HEGIS financial data are correctable errors in reporting. A process, maintained by NCES, is needed for correcting known data errors. No such procedure exists now. A potential solution is the practice of the National Science Foundation. An institution can contact NSF and correct any errors for prior years once the errors have been identified.

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[2]Gail Norris, Executive Coordinator, Washington Council for Postsecondary Education, is spearheading this effort.

More typical of the data limitations, however, are problems with the procedures themselves. Institutions report correctly, but because of differences among institutional and state practices, the data are not comparable. For example, certain vocational-technical institutions are not part of the HEGIS universe. In one state, debt service may be paid out of current institutional funds (thus appearing as HEGIS data), but in another state it may be handled by a separate agency. In some cases, a researcher can analytically compensate for some of the known data problems. For example, in the case of differences in the organization of medical schools, it is possible through the HEGIS degree file to identify how such schools are organized. This knowledge can be applied analytically to separate reported data for those institutions that have an integrated medical school from those that don't.

To address problems associated with existing procedures, NCES should authorize a reexamination of financial reporting practices from the perspective of higher education financial data users, involving others in that process (institutional data providers, state representatives, and researchers). Because any changes that would result from such an effort would not be achieved immediately, continued efforts to highlight these data limitations and to caution users of these data must continue.

Other efforts to improve data quality could include:

- Better feedback to NCES from the higher education community of known data problems
- Immediate feedback from institutions using institutional profile reports
- More use of cross-file editing
- More involvement of the states in providing local assistance in interpreting reporting procedures
- More interaction by NCES staff with editing contractor to assure procedures are followed properly and completely documented
- Institutional involvement when editing questions arise about the data they have reported

Timeliness of HEGIS Finance Data for Research

While NCES has made remarkable progress in their release of HEGIS finance data, some additional improvements are probably possible. Such improvements, however, are more dependent on the postsecodnary community than on NCES.[3] Reduced response times by institutions is one needed step. Efforts by a state postsecondary agency to reduce this response time have proven helpful in the past and should be continued. Secondly, a shifting of many editing responsibilities to the state level is likely to provide faster reporting and

[3] However, a regular schedule for the release of financial tapes would greatly facilitate the scheduling of research work and hence its timely release for use.

improved data quality. In general, NCES is too removed from the scene to judge the accuracy of data. The Maryland example described by Lapovsky is a good case in point. It shows effective state editing to improve comparability and speed.

Cost-Effectiveness of HEGIS Financial Data for Research

As stated above, a comparison of the cost of directly collecting financial data from approximately 3000 institutions with local reporting makes HEGIS financial data highly cost-effective. Changes in the documentation already detailed would further reduce costs. From a general, user perspective, increased publication by NCES of summaries and analyzed reports would make use of these data even more economically feasible. The further development of data services to meet the needs of individual users such as institutions would also improve the cost-effectiveness of using these data sources.

While the previous comments relate to the utility of HEGIS finance data from a single researcher's perspective, figure 2 provides a listing of recommendations at various stages in the data collection and use process for different participant groups. Recognizing the shared nature of these responsibilities, agreements to a process of change by each of these participant groups is required.

Steps for the Future

In addition to the specific recommendations identified in figure 2 to improve the utility of HEGIS finance data, the following three general steps are proposed:

1. Develop a plan for broad-based participation in a review of HEGIS financial data. It has been five years since the last set of changes to the HEGIS finance form were implemented. It now seems appropriate--in light of the current recognition of limitations in that data set--to begin a revision. Such a revision should focus heavily on the quality and relevance of the HEGIS finance data. Users of HEGIS finance data should be broadly represented. Institutional data providers, NCES, and the research community should also be represented.

2. Identify the factors that affect the utility of HEGIS finance data and rank recommendations for changes. While five factors were identified in this paper, there are probably additional factors that should be considered. Specific recommendations should be developed in each area and then ranked in order to focus the efforts for change.

3. Promote the widespread use of HEGIS financial data. Given that improvements in the quality of data are so dependent on the extent of its use, it is important that the higher education community should work together to support the use of HEGIS; to discourage the proliferation of duplicative and burdensome data collection efforts; and to continue to document limitations in existing data in order to support cautious and informed use of these data, concurrent with efforts to improve these data.

Figure 2
Recommendations for Changes in HEGIS Finance Data Collection and Use Process

Process	Participants: Provider Institutions	Data Collector NCES	Researcher	Users
I. Data Collection Design	o Inclusion perhaps through an ongoing institutional panel in redesign process (NCES has state and association panels but no explicitly institutional group)	o Additional clarification to the postsecondary community of why collecting data and how they are used o Regularize a redesign process to evaluate needed changes to survey forms o Utilization of an institutional panel, in addition to the state and association panel for input	o Better articulation of research needs o More consideration of using existing data vs. collecting new data o If collect own data, more use of standard definitions, etc. o Use of pre-tests	Better articulation of research needs/uses
II. Data Collection	o Better enunciation to collector of problems in filling out forms o Work with state agencies to ensure accuracy (state editing) o Improved response time	o More efforts to work with institutions and states in explaining requests, answering questeions and facilitating response (recent examples of this are the regional meetings now underway)		
III. Editing	o Cooperation with NCES in the editing process o Review any institutional profiles or reports sent and correct if necessary	o Concern in selecting/editing contractor for continuity and cooperation o More interaction with contractor on editing to assure policies are followed o Initiation of cross-file edits using frequently used measures (S/student, O&PM per ASF, etc.)	o Communicate knowledge of any known problems to the data collector	Communicate knowledge of any known problems to the data collector

		o Creation of a multi-year correction editing capability o Interact more with provider for questionable responses o Build institutional profile and send back to provider using new and past data to aid editing process through feedback o Work with the states in editing of data		
IV. Release	Sample participation for quick release	o Use a sample for early release o Better documentation of estimates, limitations, better documentation of tapes o Develop policies for notifying other parties of subsequent editing o Continue to develop regular reports summarizing key data findings	Feedback on usefulness of early release	Feedback on usefulness of early release
V. Analysis	o Assist in development of useful analysis o Conduct own analysis	o Assist in development of useful analysis o Conduct own analysis o Build more detailed institutional classification systems into data files	o Convene representatives from user, provider, collectors to gain input and methodology and data o Develop standard routines for assessing the quality of the data files--conduct spot verification checks in areas of question o Carefully and analytically select comparison groups	o Assist in development of useful analysis o Conduct own analysis

			o Identify and document all known comparability issues--in areas where data permit do supplementary analysis to compensate (for example, medical schools) o Use supplementary data collection if needed o Provide user guidance in interpreting results o Peer researcher review of methods o Utilize feedback to revise and further develop methods (through task force and other such groups)	
VI. Use	Work with state groups in the interpretation and use of analysis	o Develop information profiles that are more "micro" in orientation to support further detailed analysis o Monitor uses of information as a basis for identifying needed changes	o Where specific questions or needs arise, provide direct assistance to those requesting it o If capability supports it, provide additional detail for user-selected peer groups on request o Provide feedback to data collectors on needed changes	o If research is not fully understood, request clarification from researchers o If further information on more select peer groups is needed, obtain it o Involve local institutional representatives in interpretation and use of information o Work with data collectors and researchers to improve data and analysis

Fig. 2. Recommendations for Changes in HEGIS Finance Data Collection and Use Process

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